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form of its leaves from a regular elliptic form to ovato-lanceolate. The dimensions of the leaves from Colonel's Island are $11\frac{1}{2}$ inches long and $2\frac{1}{2}$ wide.

Those from other localities are,

Of the elliptic form, transverse diameter, 7 inches,

" conjugate, 4 inches.

" ovato-lanceolate $7\frac{1}{2}$ long, $3\frac{1}{2}$ wide.

Regular gradations may be found between these various forms. The opinion expressed by Elliot that *M. pyramidata* is a variety of *M. auriculata* is therefore erroneous. Major Le Conte also stated, that he had been personally informed by Mr. Bartram that his *M. pyramidata* had lanceolate leaves.

October 31st.

Mr. ORD, President, in the Chair.

The Committees to which were referred papers by Mr. Dana, read October 3d; by Dr. Heermann, read Oct. 10th; by Major Le Conte, read Oct. 17th; by Dr. Leidy, read Oct. 17th; by Dr. Hallowell, read Oct. 17th; severally reported in favor of publication in the Proceedings.

Catalogue and descriptions of Crustacea collected in California by Dr. John L. Le Conte.

By JAMES D. DANA.

1. *Anomoura*.

HIPPA TALFOIDES, Say.

CLIBANARIUS ÆQUALIS, D., Rep. Crust. Exp. Exp., p. 464, pl. 29, f. 4.

This Californian *Clibanarius* is identical with the Madeira and Cape Verde *C. æquabilis*, a species which is probably identical with one at the island of Tahiti, in the Pacific. See Rep. Crust. loc. cit.

2. *Macroura*.

CALLIANASSA CALIFORNIENSIS, D. Pes grandis superficie lævis; manu ad basin latiore, digito mobili non brevior quam manus dimidium, subuncinato, sparsim hirsuto; carpo superficie laterali nudo, marginibus ciliato, paulo oblongo, parce brevior quam manus, brachio crassiusculo, carpum longitudine fere æquante, infra juxta basin lobum subovatum denticulatumque gerente, articulo precedente infra denticulato. Manus parva angusta, carpo parce brevior.—Long. $2\frac{1}{2}$ ".

3. *Isopoda*.

IDOTEA OREGONENSIS, D., Rep. Crust. Exp. Exp. p. 704, pl. 46, f. 6.

This species is named *I. hirtipes* in the author's report, and in the plate referred to; the name is changed to *I. Oregonensis* in the explanation of the plates accompanying the latter, on account of its having been previously used.

IDOTEA MEDIA, D. *I. Oregonensi* affinis, paulo angustior. Corpus læve, latere paulo arcuatum. Abdomen sesqui longius quam latum, lateribus fere parallelis, apice arcuato-truncato ad medium apiculato. Antennæ externæ tertiâ corporis non longiores, flagello ferme 10-12-articulato, vix brevior quam basis, fere nudo. Pedes fere nudi.—Long. $10'''$.

The abdomen is three-jointed, with an additional suture either side of the last segment, as in the *I. Oregonensis*.

STENOSOMA (IDOTEA) GRACILLIMUM, D. Corpus angustissimum filiforme, segmentis thoracis plerumque subquadratis, capite quadrato. Abdomen lineare, apice truncatum, 3-articulatum, segmento 3-tio utrinque suturâ notato. Pedes

perbreves, subæqui. Antennæ externæ corporis dimidio paulo breviores, flagello 10-12-articulato, breviorè quam basis, nudo.—Long. $5\frac{1}{2}$ '''.

SPHERILLO AFFINIS, D. Corpus superficie læve et innotatum. Antennæ subtilissime scabriculæ, articulis duobus ultimis conjunctis (6to 7moque) 5to parce brevioribus. Segmentum abdominis ultimum paulo transversum, medio constrictum. Styli caudales lati, latitudine basali non longiores, angulo interno-postiore late excavato, lateribus antico postico et externo fere rectis et inter sese rectangularis, angulo interno-anteriore truncato, externo-anteriore rotundato, ramo posteriore minuto, parce exserto.—Long. $4\frac{1}{2}$ '''.

PORCELLIO GEMMULATUS, D., Rep. Crust. Exp. Exp. p. 725, pl. 47, f. 7.

STYLONISCUS GRACILIS, D. Corpus gracile. Abdomen paulo oblongum, subovatum, thorace postico subito paululo angustius, segmentis 3tio 4to 5toque lunatis. Styli caudalis basis brevis, vix duplo longior quam latus, extus ad medium subito angustior. Antennæ externæ fere nudæ, flagello ferme 14-articulato, nudo, articulos basis duos precedentes longitudine fere æquante.—Long. 5'''.

As in other species of this genus, the outer antennæ have not the double geniculation characterising the Oniscidæ. The surface of the body is smooth; yet there are a few exceedingly minute hairs especially along the posterior margin of the segments of the abdomen. The branches of the caudal stylets in the specimen are mutilated.

Genus *ALLONISCUS*, D. *Scyphacidis* affinis, extremitate mobili maxillipedis oblongâ et lobatâ, lobis setulosus; antennis externis, non 2-geniculatis. Processus apicalis maxillipedis crasse elongatus. Styli caudales breves, articulo basali ad marginem segmenti abdominis posticum adnato et fere transverso. Antennæ externæ 8-articulatæ. Oculi parvi.

This genus is between *Scyphax* and *Styloniscus* in most of its characters. But the apical process of the maxillipeds is large, as in *Oniscus*. Moreover, the bases of the caudal stylets form a border to the last abdominal segment, so that the apices of the two are brought nearly together.

ALLONISCUS PERCONVEXUS, D. Corpus valde convexum, subtilissime subgranulosum, fere læve. Antennæ externæ subtiliter scabriculæ, articulis tribus ultimis subæquis, articulo precedente non longioribus. Abdomen paulo transversum. Ramus terminalis styli caudalis basi brevior. Pedes infra spinulosi.—Long. $6\frac{1}{2}$ '''.

Both the back and the legs in the specimens are brownish black. In some smaller specimens four to five lines long; the color is light brown, mottled with yellowish, and the legs are pale yellowish; the form is a little more slender, and they may probably be a different species. The last three joints of the outer antennæ are not so nearly equal.

LYGIA OCCIDENTALIS, D., Rep. Crust. Exp. Exp., p. 742, pl. 49, f. 7.

ÆGA MICROPHALMA, D. Oculi subrotundi, parvuli. Corpus superficie nudum, læve. Antennæ externæ longiusculæ, flagello ferme 24-articulato; internæ basi externarum breviores. Pedes fere nudi; antici breves, articulo 4to 5-6 dentibus spiniformibus brevissimis infra armato; 8 postici breves, apice articularum spinulosi. Abdomen 4-articulatum, segmento postico triangulato apice rotundato et pubescente, lateribus rectiusculis. Styli caudales spinâ tenui et longâ ramis parce breviorè ad basin armati; ramis abdomen vix superantibus, breviter ciliatis, interno lato, apice oblique leviter arcuato, externo dimidio angustiore, breviter lanceolato.—Long. 6'''.

The six epimerals either side are large, and excepting the two anterior, they project behind, beyond the segment to which they belong. The eight hinder legs are naked, excepting the spines at apex and one or two sets of minute spines on the under side of some of the joints.

Genus *ÆGACYLLA*, Dana. *Æga* affinis. Thoracis segmentum septimum breve et pedibus carens. Oculi permagni. Antennæ, sex pedes antici, stylique caudales ac in *Æga*.

In the only species examined, the abdomen is six-jointed. On either side there are five epimerals distinct, that of the 7th segment being wanting.

ÆGACYLLA LECONTII, D. Corpus læve, nudum. Oculi fere conjuncti. Segmentum abdominis ultimum paulo transversum ad basin latius, apice arcuato-truncatum, nudum. Styli caudales abdomen vix superantes, elongate ciliati; ramo externo lanceolato, interno fere duplo latiore, subovato.—Long. $6\frac{1}{2}$ '''.

The second joint of the superior antennæ has a process at its apex nearly as long as the following joint, and these antennæ are shorter than the base of the inferior antennæ; the flagellum is about 7-jointed. The flagellum of the inferior pair is about 10-jointed.

SPHEROMA OREGONENSIS, D., Rep. Crust. Exp. Exp. p. 778, pl. 52, f. 4.

4. *Amphipoda*.

ORCHESTIA PICKERINGII, D., Rep. Crust. Exp. Exp. p. 882, pl. 59, f. 9.

ORCHESTIA CALIFORNIENSIS, D. Oculi majusculi. Antennæ 1mæ perbreves; 2dæ crassæ, dimidio corporis multo longiores, marginibus subtilissime setulosæ; flagello parce longiore quam articulum precedens, depresso, ferme 18-articulato, articulis non oblongis, partim transversis. Pes 1mus articulo 4to angusto, infra unâ spinâ armato; 5to angusto, brevior, processu parvo infra armato, apice oblique truncato; ungui brevi, vix digitiformi. Manus 2da grandis, subovata, infra palmâ subexcavatâ, spinam versus apicem acutam gerente, digito sat longo. Pedes sex postici spinulis brevibus multis ornati.—Long. 7'''.

The 7th pair of legs is but little longer than the 6th, and much longer than the 5th.

ALLORCHESTES ANGUSTUS, D. Epimeræ perlatæ, 4tâ multo latiore quam longa, 5tâ angustâ subæque bilobatâ. Pedes 1mi debiles, manu paulo oblongâ, apice truncatâ, palmâ terminali bilobatâ, carpo subtriangulato. Manus secunda, subovata, palmâ rectiusculâ, inermi, parce pubescente; carpus brevis, processu tenui infra prolongatus. Pedes sequentes nudiusculi, marginibus articulorum postici nudis, spinulis totis parvulis et remotis. Long. $4\frac{1}{2}$ '''.

Owing to the broad epimerals, the animal is narrow with high sides.

Additions to North American Ornithology, with description of new species of the genera Actidurus, Podiceps and Podilymbus.

By A. L. HEERMANN, M.D.

Genus *HYPOTRIORCHIS*, Boie.

HYPOTRIORCHIS AURANTIUS, Gmel. Orange breasted Falcon.

FALCO " " Syst. Nat. vol. i. part. i. p. 283.

" " Latham's Birds, vol. i. p. 289.

" FEMORALIS, Temm. Pl. col. vol. i. pl. 121 and 343.

Male.—Head, wings and back, light slate color; the primaries being of a darker hue, and in their inner vanes barred with white, with which also the tertiaries are tipped. A white line starting from above the eye extends down the occiput, becoming rufous as it forms a collar on the hind neck. A deep slate colored moustache descends from the angle of the mouth, one half inch on the throat; auriculars of the same color. Chin, white. Breast, orange or yellowish white, and in some specimens marked with elongated spots of black. Abdomen, thighs and under coverts of the tail, rufous. Sides and flanks, dusky black; each feather being banded with delicate transverse white lines, and often uniting so as to form a band in front, at the junction of the breast and abdomen. In some specimens this band does not appear, as the dusky black feathers do not in all cases extend across the abdomen. Tail, light gray slate color, is composed of twelve feathers crossed by nine white bars; the ends of all these feathers being tipped with white, except the two centre ones. Legs, yellow. Bill, yellow, tipped with bluish black. Length, 14 inches.

Female resembles the male, but its colors are less brilliant and marked.

The young bird has the back and tail of a dusky brown, each feather being fringed with a narrow border of lighter shade. Primaries and tertiaries, edged with white. Breast, yellowish white, covered with a broad band of dusky black extending down to the thighs; these feathers being often edged with light clayish color. Moustache and auriculars, dusky brown.

I saw this bird twice on the vast plains of New Mexico, near the United States line, before procuring it, flying over the prairies in search of small birds and mice, and at times hovering, as is the wont of our common sparrow hawk, (*Tin. sparverius*.) We possess little information relative to its habits from those authors who have written on this bird. It appears to be a resident of Surinam, Cayenne, Brazil, Chili and other portions of South America, and is used in Chili for hunting the partridge. Besides this species, the American Ibis (*Ibis Mexicanus*.) also from South America, comes yearly to incubate in California; and further researches will doubtless still add to our fauna from that country and Mexico.

Genus PHALACROCORAX, Briss.

PHALACROCORAX PENICILLATUS, Brandt. Brandt's Cormorant.

The specimens in my collection, captured on the Ferrea Leones Islands, are, I take it, the same as that described by Brandt under the above title. Not having the work in which he describes the *P. penicillatus*, I have resorted, for the purpose of comparison, to a specimen so labelled, and purporting to come from North America, in the Museum of the Academy of Nat. Sciences of Philadelphia. They tally exactly in their color and markings, though they differ in size. The tail is greyish black, composed of twelve feathers. Feet, black. Bill, dusky, but of a lighter color towards base of lower mandible. Gular sac, blue, and at its base, a gorget of dirty white. Plumage of back of head, sides of neck and to the middle of the back, interspersed with white linear feathers, varying from two lines to two inches in length. Head, neck and abdomen, black, with glossy reflections of green and blue. Back, black, with glossy green reflections, each feather being margined with a narrow fringe of bluish black.

Dimensions of the Academy's specimen.—Length, 24 inches. From flexure to tip of wing, 10 inches. From point of bill to angle of mouth, $3\frac{1}{2}$ inches. Length of outer toe, $3\frac{3}{8}$ inches; of second toe, $3\frac{1}{2}$ inches; of inner toe, $1\frac{1}{2}$ in.

Dimensions of my specimen.—Length, 28 inches. From flexure to tip of wing, $11\frac{1}{2}$ inches. From point of bill to angle of mouth, 4 in. Length of outer toe, $3\frac{1}{2}$ in.; second toe, $3\frac{1}{2}$ in.; inner toe, $1\frac{1}{2}$ in.

The bill in my specimen is stouter, the gular sac extends further down the throat, and the bare space around the eye is larger. Both specimens are in full spring plumage.

Late in June, these birds were quite numerous at the west end of the island, and did not appear to associate with the other species; but flocking together on the most elevated rocks, passed the after part of the day in a state of repose, the morning having been employed in pursuit of fish, upon which they prey. This bird was not incubating at that period, as was the *P. Townsendii* and *P. splendens*.

Genus ACTIDURUS, Bonap.

ACTIDURUS NÆVIUS, nobis. Mottled Grass Plover.

Form.—Bill, slender, as long as the head; culmen, straight; sides, compressed towards the tip, which is slightly curved; nostrils, linear. Wings, pointed, reaching to the end of the tail, the first primary being the longest. Tail, long, broad and rounded, the central feathers longest. Tarsæ and toes long. Claws, short and acute.

The feathers of the upper parts, black in their centre, with broad margins of light yellowish brown. Primaries, brown, the ends being black, narrowly tipped with white. Under surface, white, becoming mottled with black $2\frac{1}{2}$ inches from their termini, which there change to a grayish hue. Under wing coverts, black, spotted with a very faint yellowish ochre and tipped with white. Under parts,

pale yellow ochre, the feathers bordered with faint white; those of the breast, near the pinion of the wing, having in their centre a linear spot of black. The lower part of abdomen and vent are of a much paler hue than the breast. Tail, brown on its upper surface, the two middle feathers having a bronzed tinge, the others being tipped with yellowish white, followed by a black band; under surface, grayish, the inner vanes being mottled with minute brown spots. Bill, black. Feet, light yellow. Length $7\frac{1}{2}$ inches.

While riding on the prairie near San Antonio, my attention was called to this bird from its lesser size than Bartram's Tatler, (*Actidurus Bartramius*,) which there abounds. It ran nimbly on the ground among the grass in search of insects, uttering, when disturbed, a weak tweet, two or three times repeated. The birds of this genus, unlike the Tringae, (which congregate in large flocks, showing a preference for the sea shore,) migrate in small parties, resorting to the fresh water ponds and streams of the interior, or seek their food on the broad grassy plains, and run with great celerity. If alarmed, they fly with rapidity, making wide, circuitous sweeps before alighting. When wounded, they take to the water, swimming with facility and often diving to escape danger. The nest, formed of grasses and containing four eggs, is placed on the ground which has been previously hollowed out. When disturbed during the breeding season, the female, flying a short distance from her nest, throws herself on the ground, fluttering along as if wounded, and thus decoys the intruder into following her away. Once at a safe distance, she takes to wing, returning to her home by a circuitous route.

Genus PODICEPS, Lath.

PODICEPS CALIFORNICUS, *novis*. California Grebe.

Form.—Size, small. Bill, slender, slightly curved upwards. Wings, short: first quill of primaries, slightly longest; secondaries, short; tertiaries, longer, nearly equal to the primaries. Tarsæ, flattened; feet, large.

Color.—The entire upper parts of a deep, sooty brown, darkest and nearly black on top of the head and the back. Neck, almost encircled with grayish white, and in front with an indistinct band of grayish brown. Sides and flanks tinged with brownish gray. Under parts, silky white and near the vent having a sullied appearance. Under wing coverts, white. Some of the shorter primaries, of a cinereous brown, faintly tipped with white. Secondaries, white, of which a few have their outer webs brown. Bill, dark, tipped with lighter horn color. Feet, dark green. Length, 12 inches.

At first sight this bird appears very closely allied to the *P. cornutus* and *P. auritus*, but on comparing them, marked differences are at once perceived, both in size and form. I observed this grebe on the inland fresh water ponds, as well as on the sea shore, where it was abundant, passing its time on the water, in pursuit of insects and small fish, with which, on dissection, I found its stomach filled. Having procured it only during the winter, I am unable to describe its spring livery, and between the two seasons there is much difference of plumage in this genus.

Genus PODYLYMBUS, Lesson.

PODYLYMBUS LINEATUS, *novis*. Lineated Diver.

Form.—Size, small. Bill, short and strong; nostrils, conspicuous. Wings, short; the 2d primary the longest; secondaries, short; tertiaries, longer than secondaries. Feet, large.

Color.—Entire upper parts, dark reddish brown. A white line from base of upper mandible, under the eye, and running down the neck, succeeded by another under it of reddish brown. Spots at the base of under mandible, reddish brown. Throat, white, marked with a few obscure spots of reddish brown. Lower neck, in front and upper part of breast, pale reddish brown, with which the sides and flanks are also tinged. Other under parts, silky white, the lower portion of abdomen and vent, mouse color. Quills, dark cinereous; secondaries, tipped with white. Bill, horn color. Feet black. Length, 11 inches.

This bird I procured during the summer, but it is found on the fresh water courses and marshy lakes of California throughout the year. The nest, composed of a few loose straws or rushes, is placed on the ground, near the edge of the marsh, and contains four eggs of a dirty white color.

Description of four new species of Kinosternum.

By JOHN LE CONTE.

The genus *KINOSTERNUM*, as defined by the latest writers on Herpetology, is described as follows: Head subquadrangular, pyramidal; cranium with only one rhomboidal plate; jaws a little hooked, papillæ under the chin. Sternum oval, moveable, both anteriorly and posteriorly on a fixed piece, furnished with eleven plates, wings short, narrow, subhorizontal, the axillary plate very large, the inguinal still larger. Vertebral scuta slightly imbricate. Tail long, in the males unguiculate.

A comparison is made of this genus with *Staurotypus*, to which it in reality has some affinity, but not so much as M. Dumeril supposes. It, indeed, does not fall into the same group when the Testudinata are properly arranged, but the *Staurotypus*, as will be shewn hereafter, is extremely different and has a manifest relation with the *Emysaurus*. M. Dumeril states that the elastic ligaments which retain the two moveable portions to the fixed intermediate part of the sternum, are situated, one under the suture of the pectoral and abdominal scuta, and the other under these last and the pectorals. Now it must be observed that the moveable portions of the sternum are not in every species joined by a ligament to the middle or abdominal piece; in many it is only the anterior one which is, and which of course turns as upon a hinge; the posterior portion is joined by a suture, which is only moveable in the same degree as any other portion of the bony frame of other animals which is articulated in a similar manner, its moveability depending in a great degree on the length of the teeth of the joining surface, in others the anterior portion is joined partly by ligament and partly by suture, the posterior one by suture only, and therefore not so moveable as in other instances.

In young subjects this capacity for motion in the so-called valves of the sternum is more apparent, but as they advance in age it gradually diminishes, until in some the three pieces become, as it were, soldered together. In those species where there are really two valves with ligamentous junctions, the box of the shell can be entirely closed, and this connects them in some degree with *Cistudo*, but this has the sternum joined to the shell by a membrane, whereas in *Kinosternum* the same thing is effected by bony commissures from prolongations of the abdominal portion.

The peculiarities of the sternum will allow the species of this genus to be arranged in three groups. 1st. Those in which it is truly bivalved, and closing entirely the aperture of the cell. 2d. Those in which although the sternum is wide, it by no means closes up the carapace, and is only furnished with an anterior valve joined to the abdominal portion, partly by ligament and partly by suture, yet fully moveable as if the ligament was extended along the whole of the hinder margin, the posterior valve united by a suture which admits of more or less motion. 3d. The sternum with two joints, both of them completely sutural. In these the different parts are frequently as immoveable as in an *Emys*.

The following description of the genus *Kinosternum* is offered with the hope that it contains all the distinguishing characteristics possessed by the animals, and that it will be sufficient to separate them from all others of the Testudinata.

KINOSTERNUM.—Chin with from two to six papillæ or warts. Vertebral scuta more or less imbricate; marginals twenty-three, sternal eleven in number. Sternum composed of three separate pieces, of which the abdominal or intermediate one is immoveable, the anterior one turning on a partially or entirely ligamentous hinge, and the posterior articulated to the same piece either by a ligament or by a suture, and consequently either freely and entirely moveable, or only more or less imperfectly so. The wings which connect the sternum to the

shell are sometimes long and narrow, sometimes short and broad, but always proceeding only from the abdominal piece. The shorter the wings the more nearly can the shell be closed up by the sternum. The inguinal plate is long and generally tolerably wide; the axillary much smaller and narrowed anteriorly. The feet are palmate, the fore feet with plicæ or folds or transverse scales on the outer side, the hind feet with as many on the inner side and a few smaller scales near the heel. The tail is sometimes furnished with papillæ and sometimes naked, often with a nail at the end and as often unarmed: this nail in no instance being distinctive of sex.

The species embraced in the last group would by some be considered as belonging to the genus *Staurotypus*, and by others to *Sternothærus*, to neither of which does it bear but a very slight resemblance.

The sternum of *Staurotypus* is, as it were, cruciform and pointed before and behind, the anterior portion consisting of but two plates, formed of the gular, the brachial, and the pectoral united, and joined to the abdominal by a ligamentous hinge, the two anal ones likewise being united into one so that the sternal scuta are only seven in number. The whole contour of the animal reminds one of the *Emysaurus*. As for the *Sternothærus* it is exclusively an African genus, and is remarkable for having no nuchal plate, and thirteen sternals, there being three gulars, those with the brachial and pectoral forming an anterior valve, which is joined to the abdominal piece by a ligament, and of course is moveable, the rest of the sternum is as fixed and immoveable as that of an *Emys*. The figure of an animal of this genus in Dumeril's *Herpetologie* represents the wings as projecting from the pectoral and abdominal scuta, in which case the anterior portion of the sternum would not be moveable.

I shall now proceed to describe all the species of *Kinosternum* which I have been able to examine, giving minute details of those which I consider new, and shorter or diagnostic descriptions of such as have been described before.

Group 1st. Consisting of those with bivalved sterna, the valves joined to the abdominal piece by ligamentous hinges.

Kinosternum longicaudatum. Testa indistincte 3-carinata, elliptica, convexa, dorso depressiusculo, postice retusa, margine angusto, nullo modo dispanso, sterno cistam omnino occludente, postice profunde sed anguste emarginato, scuto vertebrali primo ad nuchale, marginale primum, et secundi partem anteriorem appositum, vertebrali postremo solum ad marginale postremum. Cauda unguiculata, ungue lato et obtuso.

Habitat in America meridionali. Spix, Rept. Bras. p. 17, tab. xii.

The carinæ on the back of the shell are rather indistinct, and without doubt, in older individuals, are not perceptible at all. This species is considered by Dumeril as the *Testudo scorpioides* of Linnæus, which determination we shall presently see is erroneous.

K. scorpioides. Testa ovali modice convexa, dorso fortiter, lateribus modice carinata, margine declivi, scutis posterioribus vix latioribus. Sterno utrinque rotundato, integerrimo. Cauda acute unguiculata.

Hab. in America meridionali Surinami: unde a Dom Dr. Hering receptum.

Head and neck grey, mottled and reticulate with black, upper jaw slightly hooked. Shell oval, moderately convex, strongly carinate, on the vertebral line, slightly so on each side, margin obliquely declivous except in the middle, where it is perpendicular. First vertebral plate triangular, with the apex truncate and the base angled; second, third and fourth hexagonal, with all the sides nearly straight; fifth triangular, with the outer posterior angle obliquely truncate, and applied to the penultimate marginal, which is scarcely wider than that which precedes it, in consequence of which the posterior lateral is nearly trapezoidal. Margin acute all round, the plates oblong. Sternum elliptical, rounded at each end, entire, not closing up the shell entirely; wings short, inguinal plate large, scarcely narrowed anteriorly. Tail furnished with a sharp nail.

Length 5.7, height 1.6, width 4 inches, sternum 4.8 long.

The above description appears to me to answer better to the *Testudo scorpioides* than any other which I have seen. On account of the many varying opinions concerning it, I have given a more detailed description than would

otherwise have been necessary. The species is thus described in Gmelin's edition of the *Systema Naturæ*, vol. 1, p. 1041. *T. scorpioides*. Palmis unguibus, 5 plantis 4, fronte callosa triloba, cauda unguiculata. Hab. Surinami.

Testa nigra, ovali, oblonga, dorso quasi angulis 3 obsoletis, scutellis dorsi figura clypeorum nobilium (*heraldic shields*). Caput anterius tectum callo, qui posterius trilobus est, plantarum digitis externis muticis, ungues acuti, cauda incurva.

The indistinctness of the dorsal carinæ makes me conclude that by the expression "quasi angulis tribus obsoletis" is meant their rather imperfect development. I may not be right in this, for the description is scarcely sufficient to decide the question. Were it not for the great respect every naturalist ought to feel for the great master,

"Qui cunctos superat quod aut fuerunt

Aut sunt, aut aliis erunt in annis,"

it would be as well to strike out of our books this name, as well as many others scattered through his works.

M. Dumeril considers the *longicaudatum* of Spix, as well as his *brevicaudatum*, synonymous with this species. The two above-mentioned species are very different from each other, and have but a slight resemblance to the *scorpioides*. An attentive perusal of the tedious and *oratorical* descriptions of the Brazilian traveller shows this.

K. Mexicanum. Testa ovali valde convexa fusco-lutescente vel nigricante; dorso fortiter tricarinato, margine undique declivi, scutis vertebralibus secundo, tertio, et quarto elongatis. Sterno utrinque rotundato, integerrimo. Cauda unguiculata.

Hab.—Mexico; whence it was brought by Mr. Pease. Considered by Shaw in his general zoology as a variety of *K. Pennsylvanicum*, vol. iii., p. 61, pl. 15.

Head and neck above black, beneath yellow reticulately spotted with black, jaws yellow, the upper one hooked and entire. Chin with four small warts, only visible in young individuals. Fore legs above dusky, spotted on the anterior side with yellow, beneath brown inclining to dusky, with four plicæ or large transverse scales on the upper side. Hind legs of the same color, with four large and broad scales and numerous small ones near the heel. Tail short, dusky, naked, with a rather sharp and long nail. Shell brownish dusky varied with yellowish or altogether yellowish, the plate with a few indistinct, concentric striæ, which in young ones are more numerous and more distinct, and accompanied by others radiating from behind, regularly oval, very convex and elevated, strongly tricarinate, so as to form two deep and wide channels on the back: very declivous on the sides and on the margin all round. Vertebral plates elongated and imbricate, the first triangular, with the apex truncate, and the base somewhat angled, applied to the nuchal and first marginal only; the second, third, and fourth urceolate-hexagonal; the second and third emarginate behind; the fourth with the anterior lateral faces twice as long as the posterior lateral, and the posterior side bearing the same relation to the anterior; the fifth heptagonal, the two anterior faces very long, the posterior lateral short and perpendicular to the two basal, which are straight; in young specimens this plate is simply triangular, with the apex truncate. The first lateral plate is unequally triangular, the lower side curved, second and third very long, pentagonal, the fourth quadrangular with the posterior base widely emarginate, so as to give the figure another side, which thus becomes pentagonal. Nuchal plate small, wider at base; all the other plates oblong and four-sided, except the penultimate, which is twice the height of the others, with its upper face rounded, so as to emarginate the posterior basal angle of the last lateral, and is applied on the upper half of its posterior side to the last vertebral, giving that plate its pentagonal form. Sternum large, yellow, the sutures black: oval, entire, rounded at both ends, the plates in young ones concentrically and radiatingly striate, entirely closing up the box: gular plate large, triangular; pectorals irregularly four-sided, the anterior face longer than the lateral; brachials triangular; abdominals nearly square; femorals triangular with the apex truncate, and the base rounded;

caudals right angled triangular; wings very short; inguinal plate long and narrow, not joining the axillary.

Length 4.4, breadth 3.0, height 2.3, sternum length 4.2, tail 1.4.

Shaw's figure and description referred to above are both very bad.

K. integrum. Testa fusca, regulari-ovali, convexa, carinata, declivi, margine postice dispanso, laterali perpendiculari, sterno magno bivalvi, cistam omnino ocludente, antice rotundato, postice paulo emarginato. Cauda brevissima mutica.

Habitat. Mexico.

Head and neck brown spotted with yellow; front pale brown, a large orange spot behind the eye, somewhat varied with black. Jaws yellow, upper one very slightly hooked. Chin with four small warts. Legs above dusky, beneath pale brown; fore legs with two folds on the upper side; hind legs beneath squamose with four folds. Tail very short, unarmed. Shell brown, regularly oval, very convex and elevated, without any carina, very declivous on the sides and behind, the lateral margin perpendicular, the posterior expanded. Vertebral plates imbricate; the first triangular with the apex truncate, applied to the nuchal the first marginal and half the second; second, third, and fourth urceolate; the second and third hexagonal; the fourth four-sided, the anterior side one-third the length of the base, which is rounded; the fifth triangular, the apex broadly truncate, the base angled, and applied only to the last marginal. First lateral unequally four-sided, the base rounded, with four facets, second and third pentagonal, fourth four-sided, the posterior basal angle deeply and roundly emarginate by the penultimate marginal. Nuchal plate small, linear, all the other marginals oblong and four-sided, those on the sides perpendicular, the four last on each side wider and expanded, the penultimate one being higher than all the rest, and rounded on the upper side. Sternum yellow, varied with dark brown, with numerous diverging striæ on the hinder plates, and concentric ones on the anterior, rounded at both ends and a little emarginate behind; bivalved, entirely closing the box. Gular plate small, triangular, nearly equilateral; pectorals irregularly four-sided, the anterior face very short; brachials four-sided, the interior side half the length of the exterior; abdominals exactly quadrate, wings short, axillary scutum long and narrow, joining by a point to the inguinal, which is likewise very long but much wider; femorals four-sided, the interior side one-third the length of the exterior; caudals right angled triangular, with the base rounded.

Length 4.6, breadth 3.0, height 1.7, tail 1.3, sternum length 3.0, breadth 2.0.

Brought by Mr. Pease from Mexico.

K. leucostomum. Testa elliptica, convexa, postice subcarinata. Scutis vertebralibus elongatis, primo ad nuchale, primum marginale et secundi partem apposito, quinto ad marginale postremum solo apposito; margine medio subcompresso, postice dispanso. Sterno integro medio paulo angustato, cistam pæne ocludente. Cauda late et obtuse unguiculata, maxillis albidis superiore valde hamata.

Habitat. —. A fine specimen in the collection of the Academy, received from the Jardin des Plantes of Paris. It is described under the name of *leucostomum* by Dumeril, Cat. Reptil. Mus. I. des.

Group II. Anterior valve of the sternum joined to the abdominal portion partly by a ligament and partly by a suture, the posterior by suture alone; wings tolerably long, with a deep and wide groove on the anterior part.

K. pennsylvanicum. Testa elliptica, convexa, dorso depressiuscula, postice retusa; margine angusto, minime dispanso. Scutis vertebralibus subimbricatis, primo ad nuchale et primum marginale apposito, quinto ad marginale postremum solum apposito; scuto marginali penultimo multo cæteris latiore et altiore. Sterno testa angustiore, postice emarginato. Cauda acute unguiculata.

Hab. From Canada to Florida. Has a musky odor.

A young one of this species, about an inch long, had the shell perfectly round, dark brown, with a yellow spot on each of the marginal scuta, scuta of the shell a little roughened with transverse wrinkles and short elevated spots. Sternum yellowish, black in the middle. Another one much younger and smaller was of an oval form, with three very obscure and slightly developed carinæ.

K. sonoriense. Testa modice convexa, postice latiore, antice et postice declivi, margine antice et postice dispanso, medio declivi; dorso indistincte tricarinato, carina intermedia vertebrali evidentiore, alarum canali leviter exarata, prope rudimentali. Cauda unguiculata.

Hab. In the northern part of the province of Sonora.

Skin black, head and neck large, above mottled and spotted with whitish, beneath whitish, varied in the same manner with dusky; jaws horn-color, varied with black, the upper jaw hooked and emarginate; irids dark brown; chin with two tolerably large warts on the fore part. Fore legs above greyish dusky, with three plicæ or large scales; feet beneath scaly; hind legs with three large scales near the heel; hind part with two large patches of rounded echinate scales. Tail sulcate beneath, with a large and strong, rather blunt nail, and six rows of small upright pointed papillæ, and a few smaller ones round the anus. Shell cinereous brown, with some very faint radiating marks of darker, and some indistinct concentric striæ on the plates: it is elongated oval, a little widened behind, moderately convex, declivous both before and behind, the anterior and posterior margin expanded, the middle declivous; very slightly tricarinate on the back, the intermediate carina more apparent, particularly before and behind, the lateral ones obsolete and scarcely to be traced except on the two last lateral plates. Vertebral plates imbricate, the first triangular, with its apex truncate, its base straight and applied only to the first marginal, second, third and fourth urceolate hexagonal, the second longer than either of the two others, the fifth heptagonal, the upper face short subtridentate, the anterior lateral one much longer than the others, the posterior lateral short and perpendicular to the basal, which are a little curved. First lateral unequally quadrilateral, the lower side curved and with four facets, second and third transverse, pentagonal, fourth quadrangular, the posterior lateral angle widely and deeply emarginate so as to give to the figure another curved side, by which it becomes pentagonal: margin narrow, expanded in front, declivous in the middle, the three last plates expanded and the caudal one again declivous, nuchal plate oblong four-sided, the second a little wider than the first, third and fourth, the fifth, sixth, seventh, eighth and ninth are wider and somewhat angled on the upper face; all these are oblong, the tenth or penultimate is wider than any, its upper face is rounded and deeply and widely emarginates the posterior basal angle of the fourth lateral, and is applied on the upper part of its posterior face to the last vertebral, giving to that plate its pentagonal form. Sternum jointed before by a ligament and behind by a suture, not entirely closing the box of the shell; before bluntly rounded, behind emarginate, the plates concentrically striate, gular plate large, equilaterally triangular, the base rounded, pectorals oblong quadrangular, outer side a little wider than the inner and curved, the two exterior angles right, the lower one projecting a little beyond the brachials, the anterior interior angle very obtuse, the remaining one very acute; brachials triangular, the apex blunt; abdominals quadrangular, the outer side a little curved; femorals quadrangular, the inner side much shorter than the outer, posterior side oblique, outer side curved, the anterior straight, the posterior exterior angle projecting a little beyond the caudals which are right-angled triangular with the base rounded.

Length 4.4, breadth 2.7, height 1.3: sternum length, 3.7. tail 1.4.

This species, which has the shell much less elevated than any other which I have seen, appears to be intermediate between this group and the next, so much so, that I long hesitated where to place it. The points of resemblance, however, which it had in common with the *penusylvanicum* being more numerous than those which belong to the *odoratum*, led me at last to arrange it with the former. I may have been wrong in doing this, but if so, there is not much harm done. The *K. sonoriense* was brought by my son along with many other interesting animals from Tucson in Sonora; there can be but little doubt of its being found likewise in California.

Group III. Sternum narrow, subcruciform, valves joined to the abdominal portion of the chest by sutures, the lateral teeth of which are so large as to admit of but little motion, especially in the posterior one; wings long and narrow without any groove on the inner part, tail unarmed.

K. odoratum. Testa elliptica valde convexa, dorso plus minus carinato (interdum medio depresso plano) postice valde declivi, margine angusto minime dispanso, scutis vertebralibus imbricatis, primo ad nuchale et marginalis primi dimidium apposito, scuto postremo quinquangulati ad marginale postremum solum apposito, scutis marginalibus duobus postremis cæteris valde latioribus. Sterno testa multo angustiore, lobo anteriore posteriore mobiliore, interdum tamen ambobus fixis.

Hab. From New York to Florida. Smells of musk.

Test. pennsylvanica sterno immobili Schoepf. p. 110. *T. odorata* Daudin Hist. rept. vol. ii. p. 189. Test. glutinata ejusd. l. c. p. 194. *Emys odorata* Schweig. vol. i. sp. 37, p. 437. *Terrapene odorata* Merr. Amph. p. 26. Test. *Boscii* ejusdem l. c. p. 23. *Emys glutinata* ejusd. l. c. p. 24. *Cistudo odorata* Say, Journ. Acad. Sci. vol. iv. p. 206. *Sternotherus odoratus* Bell, Zool. Journ. vol. ii. p. 299. *Sternotherus Boscii* ejusd. l. c. spec. 4. *Kinosternum odoratum* Bonaparte, Obser. p. 188. *Staurotypus odoratus* Dumeril, Erpet. vol. ii. p. 299.

It is remarkable how this species has been shifted from one genus to another, until it may be found arranged under six different genera, and divided into four species. It does vary considerably as regards the mobility of the sternum, and the form of the dorsal portion of the shell, which although generally carinate is sometimes perfectly flat in the middle; specimens in all respects intermediate may be found. The anterior valve of the sternum cannot be moved more than so as to form an angle of 20° with the abdominal line, the posterior much less.

K. guttatum. Testa ovali, dorso subcarinato; flavida fusco maculata, margine undique, postice valde declivi, minime dispanso. Sterno flavescente, angusto, antice truncato, postice late emarginato, femoribus et cruribus seriebus papillarum latere inferiore echinatis. Cauda mutica.

Hab. in Pennsylvania; Prof. Baird.

Head and neck dusky brown, varied with yellow on the front and cheeks, jaws yellow with a few shades of dark brown; the upper one not hooked, the margin scarcely sinuate, chin with four small warts. Legs dusky, furnished with the usual plicæ and scales, the femora and tibiæ with a small area on the inner side of each, echinate with rows of small pointed papillæ. Tail with six rows of pointed papillæ, unarmed at the end. Shell yellowish, exactly elliptical, convex, declivous on all sides, nearly perpendicular behind, subcarinate on the vertebral line; spotted with dark brown particularly on the upper part. Vertebral scuta imbricate, the first triangular with the apex truncate and the base nearly straight, applied to the nuchal and more than half of the first marginal, second, third and fourth urceolate, hexagonal, the upper face emarginate, the lower rounded, the fifth pentagonal, the upper face narrow and emarginate, the two basal faces incurved and applied only to the last marginal. First lateral, large, unequally four sided, the lower side curved, and three times as long as the upper, second and third pentagonal, fourth quadrangular, the posterior lateral angle widely emarginate by the curved upper side of the penultimate marginal, so as to give the figure another side; nuchal plate small linear, the other marginals oblong four sided, nearly equal, except the two last which are much higher, and nearly equal. their upper faces curved. Sternum yellow, narrow, wings very much produced, before truncate and entire, behind widely emarginate, valved as in the last. Gular plate small, irregularly triangular, pectorals four angled, all the sides more or less curved, the posterior lateral angle projecting a little beyond the next scutum, brachials four sided, the upper side concave, the outer convex. Abdominals four sided, wings long and narrow, axillary and inguinal plates semi-oval, the first produced anteriorly, the other posteriorly to a point; femorals triangular, the apex widely truncate, the posterior exterior angle projecting beyond the next scutum which is four sided; the upper side oblique inwardly, the lower concave.

Length 3.8, breadth 2.7, height 1.45. Sternum length 2.6, breadth at the valve 1.4, tail 1.5.

Besides these, there are four species described by others which I have never seen, namely, *K. hirtipes* Wagler. *descript. et icones. tab 630.* *K. brevicaudatum* Spix. *Rept. Braz. p. 18, tab. xiii.* *K. cruentatum* Cat. Mus. Jardin des plantes, and *K. Doubledayi* Gray, *Cat. Brit. Mus.*

In the imperfect monograph of the Tortoises of the United States, published in the *Annals of the Lyceum of Natural History of New York* for the year 1829, I complained that no arrangement of these animals had yet been offered to the world which I could consent to adopt. This defect has not yet been remedied, nor since then have the various suggestions offered by different naturalists been at all satisfactory. Every scheme for the arrangement into families and groups, has evidently not been founded on natural and philosophical principles. Most writers on Herpetology appear to have devoted their time, not to the discovery of the affinities of the objects they were describing, but to changing the names of the genera and the species, and to making species out of the slightest varieties; thus clogging the science with useless and absurd synonyms.

The simplicity of my arrangement, which divides the whole order into four great families, and these again, when necessary, into groups, will I hope recommend it to notice. I owe this arrangement, in a great degree, to the suggestions of my son.

FAMILIA PRIMA.

Pedes penniformes. Sternum osse episternali postice producto.

1. *CHELONE* Brog. Corpore scutato. Sternum scutellis pluribus a testa seiunctum. *Caretta* Merr. et Bon. *Coriudo* Flem. *Thalassochelys* Fitz.

2. *SPHARGIS* Merr. Cute coriacea. *Coriudo* Flem. *Dermatochelys*, Blainv. *Scytina* Wagl.

FAMILIA SECUNDA.

Pedes compressi, unguati. Sternum scuto singulo (abdominali) alato, alarum marginibus non inflexis.

A.

Sternum osse episternali postice producto.

1. *CHELYDRA* Schw. Corpore scutato. Sterno scutis 10; abdominalibus luxatis alas forantibus. *Chelonura* Flem. *Rapara* Gray. *Sauroides* Lat. *Emysaurus* Dum.

2. *STAUROTYPIUS* Wagl. Corpore scutato. Sterno antice mobili, scutis septem, brachialibus et gularibus nullis, anali unico.

3. *TRIONYX* Geoff. Cute coriacea. Ossibus marginalibus nullis. *Gymnopus* Dum. *Amyda* Schw. *Platypeltis* Fitz. *Pelodiscus* eiusdem.

4. *EMYDA* Gray. Cute coriacea; ossibus marginalibus distinctis. *Trionyx* Wagl. *Cryptopus* Dum.

B.

Sternum plus minus uni-vel-bivalve, osse episternali maximo, entosternali obsoleto (in pullis rudimentali) alis a scuto abdominali solum proiectis.

1. *KINOSTERNUM* Wagl. Alis scutellis duobus additiis, sterno scutis 11.

Staurotypus in parte Dum. *Sternotherus* in parte Bell. *Cistudo* Say.

FAMILIA TERTIA.

Pedes unguati plerumque compressi. Sternum scutis duobus alatis (pectoralibus abdominalibusque); alarum marginibus, excepta Cistudine, fortiter inflexis; scutis caudalibus duobus distinctis.

§ a. *Sternum scutis 11 s. 12 tectum; unguibus 5-5, 4-5, 4-4, vel 4-3.*

1. *EMYS.* Sterno solido sutura laterali ossea, scutis gularibus duobus. Alis scutellis duobus additiis. Unguibus 4-5 vel 4-4. Includitur genus Lessonianum *Tetronyx*. *Rhinoclemys* Fitz. *Terrapene* Bon. *Clemmys* Wagl. *Geomys* Gray.

2. *PLATYSTERNUM* Gray. Sterno solido, sutura laterali ossea, scutellis tribus additiis a scutis marginalibus seiunctum.

3. *TELEOPUS** Lec. Terrestris. Sterno solido, sutura laterali ossea, alis scutellis additiis duobus; scutellis brachialibus luxatis et quasi inter marginem pectoralis inferiorem et abdominalis superiorem propulsis, unguibus 5-5. Transi- tum facit ad familiam quartam.

4. *LUTREMYS* Gray. Terrestris. Sterno diviso antice mobili, sutura laterali ligamentosa, alarum marginibus inflexis. *Cistudo* Auct.

5. †*CISTUDO* Fleming. Sterno diviso antice et postice mobili sutura laterali ligamentosa, alis nullis unguibus 4-5 vel 4-3. *Terrapene* Merr., &c., *Pyxidemys* Fitz., *Onychotria* Gray, *Emys* Schw.

§ β. Sternum scutis 13 tectum.

6. *CHELYS* Dum. Labiis carneis. *Matamata* Merr.

7. *CHELODINA*. Labiis sicut, in omnibus sequentibus, corneis. Alis scutellis additiis nullis, scuto gulari intermedio luxato et inter scuta brachialia et pec- toralia, infraque gularia duo reliqua posito; unguibus 4-4. *Chelidonia* Bon. *Hydromedusa* Wagl., *Emys* Schw., *Hydraspis* Bell et Gray.

8. *STERNOTHERUS* Bell. Sterno diviso antice mobili. Alis scutellis additi- tis nullis, scuto nuchali nullo, marginalibus 24. *Emys* Schw., *Terrapene* Merr., *Pelusios* Wagl.

9. *PENTONYX* Dum. Sterno solido, alis scutello additio posteriore: scuto nuchali nullo, marginalibus 24; unguibus 5-5. *Emys* Schw., *Pelomedusa* Wagl., *Hydraspis* Gray.

10. *PLATEMYS*. Alis scutello additio parvo anteriore. Testa scuto nuchali, marginalibus ideo 25. *Rhinemys* Wagl., *Phrynops* eiusdem, *Emys* Schw., *Hy- draspis* Gray.

11. *PODOCNEMIS* Wagl. Alis sine scutello additio. Testa scuto nuchali magno lato. *Peltocephalus* Dum., *Emys* Spix, *Hydraspis* Gray.

* *Teleopus luxatus*. Shell very dark brown, almost black, somewhat flattened along the vertebral line, declivous behind, a little expanded in front, nearly per- pendicular on the sides. First vertebral plate six-sided, of the form of a heraldic shield, with the point truncate, the posterior side recurved, 2d, 3d and 4th six- sided, the lateral faces half the length of the anterior or posterior sides; 5th four- sided, the anterior face recurved, the posterior incurved, very wide with four facets. First lateral three-sided, the anterior side with four facets: the rest four-sided, superior and inferior sides angled, the inferior side of the third with three facets, the superior side of the fourth oblique backwards, the inferior curved. Marginals, nuchal oblong rectangular, the rest nearly square, the 2d, 6th, 7th, 9th and 11th superiorly angled. Caudals two. Sternum emarginate at both ends, posteriorly more deeply and widely; gulars triangular, blunt and some- what rounded at the point; pectorals irregularly four-sided, the posterior lateral angle cut off and emarginate by the displaced brachial; this last is of an oblong shape, the superior face emarginate, the inferior straight, and the two lateral rounded; abdominals very wide, irregularly eight-sided, the posterior exterior side short and emarginate; supplementary scutellæ small; femorals four-sided, the exterior lateral face oblique inwardly; anals right angled triangular, the hypotenuse curved. Upper jaw with three rows of serrate teeth, the lower with two, the outer ones the finest. Toes and claws 5-5, fore claws long and rather sharp; hind feet clavate, claws nearly globular, the innermost one wide and flat, the edge rather sharp. Length 17 in., width 11.5, height 6.5.

Inhabits Java; must, from its shape, be terrestrial in its habits.

It possesses a strange mixture of the characters of this family with those of the next.

† Etiam si in hujus generis animalibus adultis alia sterni iunctura cum testa non apparet præter ligamentosa sine alis, tamen pullorum sternum evidenter alis est instructum, quæ testa scutellis quatuor seiunguntur. Nares subtubulosæ sunt, aliis rebus ad Emydes respiciunt. Cistudo clausa omnino et præcipue terrestris. Dubito revera num natare potest. Pulli in aqua iacti semper merguntur. Hæc natura terrestris cum cute squammosa apte ad Testudines iungit.

FAMILIA QUARTA.

Terrestres. Corpus scutatum. Sternum alatum, sutura laterali ossea, alarum marginibus fortiter inflexis. Pedes clavati, ungulati; scutum caudale nunquam divisum, sed stria superiore perpendiculari fortiter impressa, qua in partes duas secari videtur.

1. TESTUDO. Alis scutellis additiis nullis, scuto gulari in partes quatuor diviso, dorso osse penultimo vertebrali V-formi. *Chersine* Merr., *Chersus* Wagl., *Psammobates* Fitz., *Geochelone*, *Chelonoides* et *Cylindraspis* eiusdem.

2. PYXIS Bell. Sterno articulo, antice mobili. Alis scutellis additiis duobus.

3. HOMOPUS Dum. Sterno solido, alis scutello additio anteriore; unguibus 4-4. *Chersine* Merr., *Testudo* Bell et aliorum.

4. KINYXIS Bell. Sterno solido, alis scutellis additiis duobus. Testa postice articulata et mobili, scuto nuchali nullo.

I add a list of American species of Testudinata, as far as they have yet been described; many undoubtedly yet remain to be added to it, as few have been received from Texas, California and Oregon. I have omitted the sea tortoises because we know nothing about such as are found on our coasts. All the synonyms which I have been able to collect are here set down. This will serve to show the state in which the science of this branch of Herpetology is at present, as far as relates to our country.

I have in the following Catalogue considered the *Testudo polyphemus* as the T. Carolina of Linnæus and Gmelin, and the T. Carolina of authors as the T. clausa of the latter. My reasons are these: The original description in the 12th edition of the Syst. Naturæ, vol. i. p. 352, is as follows:

TESTUDO CAROLINA. Pedibus subdigitatis, testa gibba, cauda nulla. Test. pedibus digitatis, calloso-squammosis; testa ovali, subconvexa, scutellis planis, striatis, medio punctatis. Gron. Zooph. 17, No. 77. T. tessellata minor caroliniana. Edw. Av. tab. 205, (undoubtedly the Clausa; Seba. Mus. 1 tab. 80 figs. Test. major terrestris americana, (which is represented as 9 inches long.)

To this Gmelin adds: Caput subobtusum, squammis obtusis undique tectum. Pedes squammis orbiculatis obtecti, antice unguibus 5 postice 4 subulatis, acuminatis validis armati. Cauda brevissima. Scutum ovale, subconvexum antice lunulato-excisum margines acuti nec serrati. Scutella lata ad margines striis cincta, centro punctis excavata. Sternum acuminato-truncatum postice bifidum. Erasing the words in italics, this is a tolerable description of the large American land tortoise, and Gmelin certainly had it in view when he made his addition to the original description. His expression, "Sternum antice truncatum postice bifidum," together with the scaly head, prove this. The scuta of young animals of this species are deeply marked with concentric striæ, and have a nearly square area in the centre of each, which is deeply and coarsely punctate. The name of *Polyphemus* which has been given to it, means nothing; that of *Carolina* is much more fitting; and as for the other species which has been called *Carolina*, nothing can be more appropriate than *Clausus*.

It will be observed likewise that I have called the *Cistudo Blandingii* of Holbrook, *Lutremys meleagris*. About the generic name there can be no dispute; but as for the specific name, my reasons for referring it to a species already described are these. The *Testudo meleagris* of Shaw, Naturalist's Miscellany, vol. iv. p. 144, has been considered as identical with the *Lutremys Europæa*, and is always quoted as a synonym of it. Shaw tells us that his animal came from America; the other is, I believe, exclusively European. Both species are remarkable for having the shell more or less covered with small yellow spots; in the first these are irregularly scattered over the surface, in the latter they regularly radiate from a centre on each scutum; the shell is also less convex.

CATALOGUE OF AMERICAN TESTUDINATA.

- CHELONURA SERPENTINA. *Emysaurus aliorum*.
 CH. TEMMINCKII Holbrook, vol. i. p. 134.
 TRIONYX FEROX Auct. *T. Bartrami*, Geof. Ann. Mus. vol. xiv. p. 18. *T. georgicus* ejusd. l. c. p. 7. *T. spiniferus* (spinifer,) Lesueur, Mem. Mus. vol. xv. p. 255. *Aspionodectes ferox* Wagl. p. 134. *Gymnopus spiniferus* (spinifer,) Dumeril, Erpetol. xi. p. 477.
T. MUTICUS Lesueur. l. c. p. 263.
 KINOSTERNUM PENNSYLVANICUM. *Terrapene penns.* Merrem, Syst. p. 27. *Emys id.* Schw. vol. i. p. 437. *Cistuda id.* J. A. N. S. vol. iv. p. 204.
K. SONORIENSE Lec.
K. ODORATUM. *Terrapene odorata et Boscii* Merrem, l. c. p. 27. *Cistudo odorata* Say, l. c. *Emys odorata* Schw. l. c. p. 437. *Test. glutinata* Daudin, vol. xi. p. 194. *Sternotherus odoratus* Bell, Zool. Journ. vol. xi. p. 307. *Staurotypus odoratus* Dumeril, l. c. p. 358.
K. GUTTATUM Lec.
CISTUDO CLAUSA. *Cistudo carolina* alior. *Test. virgulata* Lat. Hist. Rep. vol. i. p. 100. *Emys clausa* Schw. vol. i. p. 315. *Emys virgulata* ejusd. ib. p. 316. *E. Schneideri* ejusd. ib. p. 317. *Terrapene carolina maculata et nebulosa* Bell, Zool. Journ. vol. xi. p. 309. Var. ? *Onychotria mexicana* Gray, Proc. Zool. Soc. vol. 17, p. 16.
LUTREMYs MELEAGRIS Turton's Lin. Syst. Nat. vol. i. p. 645; Nodder and Shaw, Nat. Miscel. vol. iv. p. 144. *Cistudo Blandingii* Holbr. vol. i. p. 39.
EMYS MUHLENBERGII Schæpf. p. 132. *Chersine Muhlenbergii* Merrem. *E. biguttata* Say, l. c. p. 212.
E. SERRATA Daudin, l. c. p. 145. *E. scripta* Gray, Rep. p. 29, who quotes Schæpf, where is figured a young animal which it is impossible to refer to any species.
E. RUGOSA Shaw, Zool. vol. iii. p. 28. *E. rubriventris* Lec. Ann. Lyc. vol. iii. p. 101. *E. irrigata* Dum. l. c. p. 276. *E. serrata* Say, l. c. p. 204. Varies very much, but the essential character is in the dentation of the jaws.
E. RETICULATA Latr. vol. i. p. 124.
E. FLORIDANA Lec. Ann. Lyc. l. c. p. 100.
E. MOBILIENSIS Holbrook, l. c. p. 71.
E. CONCINNA Lec. l. c. p. 106.
E. OREGONENSIS Holbr. l. c. p. 107.
E. HIEROGLYPHICA Holbr. l. c. p. 111. *E. ornata* Gray, Rept. p. 50. *E. annulifera* ejusd. ib. p. 52.
E. CUMBERLANDENSIS Holbr. l. c. p. 115.
E. TROOSTII Holbr. l. c. p. 123.
E. INSCULPTA Lec. Ann. Lyc. vol. iii. p. . *E. scabra* Say, l. c. p. 210. *E. speciosa* Gray, l. c. p. 26.
E. GEOGRAPHICA Lesueur. *E. pseudogeographica* ejusd. Holb. vol. i. p.
F. PALUSTRIS Linn. *E. terrapene* alior. *E. centrata et concentrica* quorund.
E. PICTA. *T. cinerea* Schæpf. tab. iii. f. 2 and 3, is a young one.
E. GUTTATA. *E. punctata* Schæpf.
 TESTUDO CAROLINA. *T. polyphemus* aliorum.

In the Catalogue of Amphibia in the collection of the British Museum, and in that of the Jardin des Plantes, the following species of tortoises are mentioned as coming from the United States. In the English Catalogue are described *Emys rivulata*, *E. scripta*, *E. Holbrookii*, *E. macrocephala*, and *E. Bennetii*. Not having these, and knowing that the descriptions must have been taken from dried and faded specimens, or from such as were bleached by long immersion in

alcohol, I do not hesitate to pronounce them as having no real existence as distinct species, or at most as being slight variations from others well known and long ago determined.

The *Kinosternum Doubledayi*, however, forms an exception. It appears to be certainly a new and hitherto undescribed animal, although what Mr. Gray says of it is scarcely sufficient to distinguish it. M. Dumeril's *E. labyrinthica* seems to be nothing more than *E. hieroglyphica* of Holbrook, slightly varying in the disposition of the marks and lines on the shell; his *Kinosternum cruentatum* is probably not from this country; it is a well marked and distinct species.

The following species, retained in most of our books, ought to be struck out. In Schæpff, *Testudo tricarinata*, a young animal of some *Kinosternum*; *T. cinerea*, a young *picta*; *T. scripta*, a young *serrata* or *reticulata*; *T. rostrata*, a young *Trionyx*. And from Linnæus, *Syst. Nat.*, *T. membranacea*, which is likewise a young *Trionyx*; *T. scabra*,—the description has been made from an immature specimen, which, if full grown, might have been smooth; *T. carinata*; *T. sulcata*; and, finally, *T. squamosa*, which is not a Chelonian.

Observations on the Vespertilio leporinus of Linnæus.

By JOHN LE CONTE.

Our associate Dr. Woodhouse, some time ago gave me for examination a species of Bat found by him in the province of Honduras, which is undoubtedly the *Noctilio dorsatus* of Geoffroy de St. Hilaire, the *Vespertilio leporinus* of Linnæus, i. p. 47, although the description of "the illustrious Swede" is rather short and imperfect. Schreber vol. i. p. 163 tab. 60 describes and figures it as a *Noctilio* retaining the Linnean specific name. Wagner, in his supplement to the work of this last author vol. 1 p. 451, calls it *N. dorsatus* and considers it the same as the *albiventris* of Spix. Sim. et Ves. Brazil tab. xxxv. fig. 2 and 3, and the *N. affinis* of D'Orbigny Voy. vol. iv. p. 42 p. 12. The *N. unicolor* of Wagner is probably the same. Indeed the author observes, that it only differs in color from the other species which he describes; which is a matter of very little consequence in any of the *Vespertilionidæ*. Every species of this family is so variable in this respect as to forbid its being taken as a criterion of difference. There will therefore be but one species of this genus, and for the name of this we must revert to Linnæus and resume the old name of *leporinus*, although this appellation was founded in error, the upper lip not being cleft, but in recent specimens covering the incisors. In dried animals it shrinks and becomes drawn up in such a manner as to leave the upper fore teeth exposed, and to represent a very bad case of hare lip.

The animal from which the following description was taken, was in its most perfect state of development; at that period of its life when it would be called neither young nor old. It certainly had but two upper incisors nor was there any appearance of there ever having been any others; in their shape they resemble canines, and like them are furnished with an interior lobed calcaneum. The lower incisors are deeply emarginate and may in some instances be taken for four distinct teeth.

The upper fore teeth of Cheiropters offer a very interesting subject for investigation, whether what are so-called are in reality incisors, or not more properly canines. It is now generally allowed that no teeth ought to be called incisors unless they spring from the intermaxillary bone; now whether in those animals where there is no nasal bone and the front of the upper jaw is excavated, and this excavation reaching to the end of the *os frontis*, they can be said to have any *os intermaxillare*, I have not been able to determine. In the frugivorous bats which have regular incisors in the upper jaw, the cranium entirely wants this frontal excavation, and is furnished with nasal bones in as much perfection as any other mammal. The determination of this point must be left to others; it is sufficient that I have hinted at the circumstance. It appears to me that some species of *Taphizous* may belong to this genus; not however having specimens to compare I cannot pronounce positively. The generic essence of our animal,

exclusive of the teeth is the peculiar form of the alar membrane, which on the sides extends only to the middle of the tibia, and in the tail being shorter than the interfemoral membrane and in having its extremity free by passing through it near the middle.

There are very good representations of this animal in Schreber and in D'Orbigny. The figure in Seba vol. i. pl. lv. fig. 1, referred to by authors, has nothing to do with it.

In order to remove any difficulty which may hereafter occur in the determination of this species I add a detailed description, observing that very little reliance ought to be placed on the color.

Noctilio leporinus. Linn. Syst. Nat. i. p. 47, *Noctilio dorsatus* Geoffroy de St. Hilaire and Wagner, *N. albiventris* Spix, *N. affinis* D'Orbigny, *N. unicolor* Wagner.

Fur short and soft fulvous a little paler beneath, back with a very conspicuous narrow stripe of a paler and yellowish color from the base of the head to the root of the tail. The hair of the back occupies a triangular space the base of which lies between the shoulders and the apex reaches to the tail, leaving the sides naked. Beneath the whole body is covered with hair. Face black: nose broad, flat, emarginate, sulcate on the top; nostrils somewhat tubular and projecting; upper lip tumid confluent with the nostrils, hanging down and its dependant sides so placed as to form a wide excavation below the part which covers the incisors; it is not however cleft nor resembling a hare lip (unless it be shrunk and contracted upwards by the drying of the parts) lower lip very tumid, three lobed the lateral lobes recurved and crenate on their edge. Chin with a small semicircular appendage and four folds diverging from it. Cheeks with four small warts, each furnished with two bristles. Ears rather long, oval, blunt pointed, outer edge with four or five transverse plicæ the lower part with an upright rounded lobe; tragus small with a small branch on the inner side and four blunt teeth on the outer. Membrane thin, black, naked, not reaching as in most other bats to the carpus of the hind feet but ending about the middle of the tibia, on the under side it is whitish for a considerable space near the body, around the tail and along the hind legs: at the thumb, on the under side of the membrane on each side of the innermost figure is a small pouch or cavity formed by a narrow appendage or supplementary portion of the membrane which proceeds from the joint and runs down the wing for a short distance. Interfemoral membrane including the tail, broad rounded at the end with a small tooth on each side about one quarter of the distance from the middle. Tail not half as long as the interfemoral and projecting from the middle of the membrane for about one fifth of its length. Hind legs stout, feet very long toes with parallel claws very long and very much hooked calcaneum bordering the membrane for the greater part of its length.

Length of head and body 4 inches, head 1.2, extent 22.7, length of interfemoral 2 inches, tail 1.0, naked portion 2.0, foot 1.1, nail 35.

On Urnatella gracilis and a new species of Plumatella.

By JOSEPH LEIDY, M. D.

In the Proceedings for November 1851, (page 321), I published the description of what I then suspected to be the cœnœcium of a new genus and species of fresh water bryozoid polyps, to which I gave the name of *Urnatella gracilis*. Since then I have examined this body and find my suspicion was correct; and *Urnatella* proves to be the most beautiful of the fresh water polyzoa which has yet been discovered. I have made drawings of the species, and propose hereafter to give a full description of it; and at present will simply give its diagnosis.

URNATELLA, Leidy.

Cœnœcium consisting of a series of segments up to eighteen in number, and forming free, semi-erect, curved stems, attached only by the base of the lowest segment. Segments, excepting the three last ones, simple, uniform; the antepenultimate and the penultimate oblong, with simple or compound branches of

the same form; the last segment or active polyp is campanulate and is supplied with cylindrical, ciliated arms arranged in a circle around the mouth.

URNATELLA GRACILIS, Leidy.

Stems single, or in groups up to six in number, attached at the lower extremity by means of a sienna colored granular substance. Urniform segments .225 m.m. long by .18 m.m. broad, becoming smaller towards the free end of the stems; body portion of each urniform segment translucent whitish, with sienna colored transverse striæ and punctæ, and having on each side near the bottom a rounded process, the remains of former branches; the narrow top and bottom portion of the segments brown in color and annulated. The antepenultimate and penultimate segments and their branches oblong, translucent. Polyp .225 to .45 m.m. long, campanulate; expanded mouth circular, the diameter equal to the length of the body, surrounded by fourteen cylindrical, ciliated, retractile arms. Stems up to 4 m.m. in length.

Habitation.—On the underside of stones in the river Schuylkill below low water, in Philadelphia city.

PLUMATELLA VESICULARIS, Leidy.

Cœnœcium radiating and branching, attached, colorless and transparent; each segment slightly dilated and much broader than the protuberant orifices of exit. Length of the segments about 1 m.m., breadth 1 m.m. Animal colorless. Ova oval lenticular, (with an annulus but without spines.)

Habitation.—Found in the Schuylkill river with the preceding, on the under side of flat stones.

Remarks.—This species of *Plumatella* is as limpid as the water in which it lives; and it resembles rows of colorless vesicles with a whitish line passing through their axis. Frequently it is observed with rows of imbricated blackish eggs instead of the latter line. Patches are found from a quarter of an inch to two inches square.

Notices of new Reptiles from Texas.

By EDWARD HALLOWELL, M.D.

Family LACERTIDÆ.

Genus *CNEMIDOPHORUS*, Dum. et Bib.

Cnemidophorus guttatus, nob.

Char.—Head olive color; body greenish olive, with eight lines of the same color; intermediate spaces upon sides brown; sides presenting numerous white spots arranged in longitudinal rows; under surface dark blue, marked with white; of anterior extremities deep blue; of posterior extremities and of tail white; scales of the body very small; subgular fold margined with a row of large smooth scales; several smaller rows anterior to them; eight rows of scales upon the abdomen; 16 femoral pores on each side very distinct.

Dimensions.—Length of head 1 inch; greatest breadth $\frac{5}{8}$ in.; length of head and body to vent $3\frac{1}{2}$ inches; of tail $4\frac{1}{2}$ inches; of anterior extremities 1 1-8th in.; of posterior $2\frac{1}{4}$ in.

Habitat.—Texas.

Gen. Obs.—Readily distinguished from *Ameiva sexlineata*; allied to *Cnemidophorus*, but the latter is without spots.

Family CROTALIDÆ.

Genus *CROTALUS*, Linn.

Crotalus ornatus, nob.

Char.—Three large plates in front of upper part of head on each side; nasals large; posterior part of head covered with smooth scales; rostral rather large; eighteen supralabials, the 6th, 7th and 8th the largest; a small plate between the rostral and first supralabial and anterior frontal; 27 rows of scales; ground

color slate or grayish above, with transverse, brown, lozenge-like bands, their external margins extending to the abdomen with intermediate yellow spots and yellowish markings enclosed within the brown, sometimes two in number; the brown lozenge-like spots become indistinct posteriorly and contain no yellowish spots, giving to this part of the upper portion of the body a sombre appearance, compared with the beautiful variegated robe of the rest; about 17 of these distinct brown lozenge-like spots may be counted upon the back; tail entirely black; throat and chin white; abdomen light straw color without spots, but shaded with grayish. 194 abdom. scut.; 3 bifid post-abdom. scut.; 19 subcaudal; 7 rattles in the present specimen.

Dimensions.—Breadth of head posteriorly $1\frac{1}{2}$ inches; length of head $1\frac{1}{2}$ inches; of body 3 feet 5 inches; of tail 2 inches; of rattle 1 inch.

Habitat.—Near Pecos River, N. W. Texas.

The reptiles above described were found by Dr. Heermann, Naturalist to the expedition for the survey of a railroad route to the Pacific, under command of Lieut. Parke, U. S. Top. Eng.

Descriptions of new Reptiles from Guinea.

By EDWARD HALLOWELL, M.D.

Family VIPERIDÆ.

Genus ECHIS *Merrem*.

Char.—Subcaudal plates in a single row; nostrils minute, in suture of two small scales; the anterior frontal shields minute, smooth; pupil round; eyes surrounded by small scales; supraciliary shields small, scale-like or single, elongated and distinct; scales elongate, keeled at the tip. (Gray.)

Echis squamigera, nob.

Sp. char.—Rostral plate much more extended in the transverse direction than vertically; eleven distinct plates along the margin of the upper jaw, of which the 5th, 6th, 7th and 8th are the largest; the inferior margin of the eye opposite to the 4th, 5th and 6th; eye surrounded with scales, of which the two anterior are the largest, and of nearly equal size; anterior genaeals much narrower than the posterior; neck contracted; body slender, compressed, thicker in the middle, with 18 rows of lanceolate and strongly carinated scales; the lateral and inferior rows do not differ in size from the rest, and are also carinated; tail short and tapering with strongly carinated quadrangular scales.

Coloration.—Olive green above, darker upon the tail, the scales for the most part tipped with yellow; posterior half of body with numerous transverse yellow fasciæ, about half an inch apart.

Abdom. scuta 155; 1 præ-abdom. single; 1 post-abdom. bifid; 58 single plates under the tail.

Dimensions.—Length of head 1 inch; breadth $\frac{3}{4}$ inch; length of body $17\frac{1}{2}$ inches; of tail 4 inches; circumference at middle $1\frac{3}{8}$ inches.

Habitat.—Near the river Gaboon, Guinea. One specimen, presented by M. P. Bellonni Duchailu.

Gen. obs.—This is evidently not the *Echis pavo*, or *Echis varia* of Reuss, Mus. Senkenberg., band 1, p. 157, 160. It has a certain resemblance to the figure of the *Vipera pyramidarum*, Descript. de l'Egypte, t. 7, fig. 1, but the scales upon the head in that figure are represented as all of the same size, and the markings upon the body are not the same. It has no resemblance to the *Horatta Pam* of Russell, Indian Serpents fig. 11. It is well characterized by the larger scales upon the vertex. But two species of *Echis* have been heretofore described.

Fam. HYLADÆ.

Hyla punctata, nob.

Gen. char.—Head large, depressed; eyes very large and prominent; skin smooth, for the most part above, with a few small scattered tubercles, quite

abundant, however, upon the thighs; tongue cordiform, quite free posteriorly, emarginate; two bunches of teeth upon the palate between the posterior nares; posterior nasal apertures large; eustachian foramina quite distinct; fingers slightly webbed; terminal pellets large; subarticular tubercles very prominent, third finger longest, fourth longer than the second, second longer than the first. Toes palmated, the web of the fourth extending to the distal extremity of the penultimate phalanx; toes more slender than the fingers, and the terminal pellets much less developed; typanum distinct; tibia about a line shorter than the femur; abdomen and under surface of the thighs very thickly granulated.

Coloration.—Uniform brown above, with a few sparsely scattered and small orange colored spots; a narrow yellow orange colored vitta extending from the elbow along the external border of the fourth finger; a similar one, but less distinct, along the external border of the tarsus; color of under surface Indian yellow, deeper upon the abdomen and thighs.

Dimensions.—Length of head $\frac{3}{4}$ of an inch; greatest breadth $\frac{1}{2}$ inch; length of head and body 2 inches; of posterior extremities 3 inches; of anterior $1\frac{1}{2}$ inches.

Habitat.—Near the Gaboon River, Guinea. A single specimen presented by M. P. Bellonni Duchailu, with other species of reptiles and numerous fishes, crustaceans and worms from the same locality.